

# Best Available Copy

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(FILE 'USPAT' ENTERED AT 10:05:41 ON 24 MAR 93)

L1 25190 S 430/1-350/CCLST  
L2 36547 S TWO DIMENSIONAL OR TWO-DIMENSIONAL OR TWO(P)DIMENSIONAL  
L3 515 S L1 AND L2  
L4 277 S L3 AND RADIATION  
L5 277 S L4 AND (METHOD? OR PROCESS?)  
L6 849 S HORSERADISH AND (PARTICLE# OR POWDER#)  
L7 4 S L6 AND SPRAY AND TOPICALLY

=> s 15 and mask

49929 MASK  
L8 110 L5 AND MASK

=> s 18 and substrate

151865 SUBSTRATE  
L9 93 L8 AND SUBSTRATE

=> s 19 and mask image

49929 MASK  
155587 IMAGE  
471 MASK IMAGE  
(MASK(W)IMAGE)  
L10 6 L9 AND MASK IMAGE

=> d cit 1-6

1. 5,178,976, Jan. 12, 1993, Technique for preparing a photo- mask  
for imaging three-dimensional objects; James W. Rose, et al., 430/5 ;  
264/220, 247; 430/318 , 322 [IMAGE AVAILABLE]

2. 5,153,084, Oct. 6, 1992, Process for preparing a photo- mask  
for imaging three-dimensional objects; Donald Franklin Foust, et al.,  
430/5 ; 264/271.1, 279; 430/270 [IMAGE AVAILABLE]

3. 5,141,829, Aug. 25, 1992, Method of preparing a photo- mask  
for imaging three-dimensional objects; William V. Dumas, et al.,  
430/5 ; 427/96, 99; 430/313 , 315 [IMAGE AVAILABLE]

4. 5,043,251, Aug. 27, 1991, Process of three dimensional  
lithography in amorphous polymers; Mark F. Sonnenschein, et al.,  
430/297 , 321 , 396, 944, 945 [IMAGE AVAILABLE]

5. 4,898,804, Feb. 6, 1990, Self-aligned, high resolution resonant  
dielectric lithography; Kurt Rauschenbach, et al., 430/311 , 30 ,  
314 , 322 , 325 , 327 ; 437/180, 229

6. 4,356,254, Oct. 26, 1982, Image-forming method using o-quinone  
diazide and basic carbonium dye; Yohnosuke Takahashi, et al.,  
430/296 , 5 , 165 , 166 , 190 , 191 , 294 , 299 ,  
309 , 320 , 323 , 325 , 326 , 330 , 945

=> s 110 and rayleigh

1620 RAYLEIGH  
L11 0 L10 AND RAYLEIGH

=> s 19 and rayleigh

1620 RAYLEIGH  
L12 1 L9 AND RAYLEIGH

=> d cit

1. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5 , 311 [IMAGE AVAILABLE]

=> s l1 and rayleigh  
1620 RAYLEIGH  
L13 12 L1 AND RAYLEIGH

=> s l13 and l2  
L14 2 L13 AND L2

=> d cit 1-2

1. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5 , 311 [IMAGE AVAILABLE]

2. 4,272,186, Jun. 9, 1981, Camera method and apparatus for recording with selected contrast; William T. Plummer, 355/34, 38, 68, 71, 77; 430/236 , 391, 396 [IMAGE AVAILABLE]

=> !  
=> s l4 and l14  
L15 1 L4 AND L14

=> d cit

1. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5 , 311 [IMAGE AVAILABLE]

=> s 4379831/pn  
L16 1 4379831/PN

=> s l16 and l1  
L17 1 L16 AND L1

=> d kwic  
US PAT NO: 4,379,831 [IMAGE AVAILABLE] L17: 1 of 1  
US-CL-CURRENT: 430/311 ; 355/27, 30; 430/273 , 325 , 326 ,  
327 , 396, 950

=> s l16 and l2  
L18 0 L16 AND L2

=> s l16 and two(p)dimensional  
1280178 TWO  
98007 DIMENSIONAL  
36547 TWO(P)DIMENSIONAL  
L19 0 L16 AND TWO(P)DIMENSIONAL

=> s l2 and semiconductor  
88300 SEMICONDUCTOR  
L20 4830 L2 AND SEMICONDUCTOR

=> s l20 and l1  
L21 110 L20 AND L1

=> s transfer? pattern?  
380166 TRANSFER?  
234836 PATTERN?

=>  
=> s transfer? pattern?  
380166 TRANSFER?  
234836 PATTERN?  
L23 396 TRANSFER? PATTERN?  
(TRANSFER?(W)PATTERN?)

=> s 123 and 13  
L24 5 L23 AND L3

=> d cit 1-5

1. 4,883,359, Nov. 28, 1989, Alignment method and pattern forming method using the same; Hideki Ina, et al., 356/401; 355/77; 430/22 [IMAGE AVAILABLE]

2. 4,855,197, Aug. 8, 1989, Mask for ion, electron or X-ray lithography and method of making it; Werner Zapka, et al., 430/5 ; 156/643, 662; 250/492.2, 505.1; 378/35; 430/313 , 323 , 966

3. 4,788,127, Nov. 29, 1988, Photoresist composition comprising an interpolymer of a silicon-containing monomer and an hydroxystyrene; David B. Bailey, et al., 430/192 , 165 , 166 , 167 , 197 , 270 , 271 , 272 , 312 , 313 , 323

4. 4,719,161, Jan. 12, 1988, Mask for X-ray lithography and process for producing the same; Takeshi Kimura, et al., 430/5 ; 378/35; 430/296 , 325 , 327 , 330 , 942, 947, 966

5. 4,591,540, May 27, 1986, Method of transferring a pattern into a radiation-sensitive layer; Harald Bohlen, et al., 430/22 , 296 , 311 , 394, 396

=> s 123 and radiation  
118186 RADIATION  
L25 113 L23 AND RADIATION

=> s 124 and radiation  
118186 RADIATION  
L26 4 L24 AND RADIATION

=> s 126 and rayleigh  
1620 RAYLEIGH  
L27 0 L26 AND RAYLEIGH

=> s 126 and mask  
49929 MASK  
L28 4 L26 AND MASK

=> s 126 and semiconductor  
88300 SEMICONDUCTOR  
L29 4 L26 AND SEMICONDUCTOR

=> s 126 and substrate  
151865 SUBSTRATE  
L30 4 L26 AND SUBSTRATE

=> s 130 and mask image  
49929 MASK  
155587 IMAGE  
471 MASK IMAGE  
(MASK(W)IMAGE)  
L31 0 L30 AND MASK IMAGE

=>

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*           W E L C O M E   T O   T H E           *
*           U. S.   P A T E N T   T E X T   F I L E           *
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=> s two edges
    1280178 TWO
    319742 EDGES
L1      6002 TWO EDGES
        (TWO(W)EDGES)

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=> s two images
    1280178 TWO
    71212 IMAGES
L2      3190 TWO IMAGES
        (TWO(W)IMAGES)

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=> s 11 and 12
L3      18 L1 AND L2

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=> s 13 and (ultraviolet or uv)
    47484 ULTRAVIOLET
    28734 UV
L4      2 L3 AND (ULTRAVIOLET OR UV)

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=> d cit 1

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1. 5,051,585, Sep. 24, 1991, Apparatus and method of pattern detection based on a scanning transmission electron microscope; Hiroya Koshishiba, et al., 250/306, 310, 311 [IMAGE AVAILABLE]

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=> 1-2
'1-2' IS NOT A RECOGNIZED COMMAND

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=>
=> d cit 14 1-2

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1. 5,051,585, Sep. 24, 1991, Apparatus and method of pattern detection based on a scanning transmission electron microscope; Hiroya Koshishiba, et al., 250/306, 310, 311 [IMAGE AVAILABLE]

2. 4,534,288, Aug. 13, 1985, Method and apparatus for registering overlapping printed images; Yakov Z. Brovman, 101/211, 181

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=> s 430/1-350/cclst
L5      25207 430/1-350/CCLST (351 TERMS)
        (430/1+NEXT350/CCLST)

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=> s 12 and 15
L6      129 L2 AND L5

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=> s 16 and (ultraviolet or uv)
    47484 ULTRAVIOLET
    28734 UV
L7      32 L6 AND (ULTRAVIOLET OR UV)

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=> s 17 and (photolithograph? or lithograph?)

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L8 7 L7 AND (PHOTOLITHOGRAPH? OR LITHOGRAPH?)

=&gt; d cit 1-7

1. 5,130,213, Jul. 14, 1992, Device manufacture involving lithographic processing; Steven D. Berger, et al., 430/4 , 5 , 296 , 311 , 395, 396 [IMAGE AVAILABLE]
2. 4,835,088, May 30, 1989, Method and apparatus for generating high-resolution images; Greyson Gilson, 430/323 ; 156/643; 250/492.3; 359/29, 558; 427/555; 430/1 , 269 , 311 , 322 ; 437/20, 229
3. 4,347,479, Aug. 31, 1982, Test methods and structures for semiconductor integrated circuits for electrically determining certain tolerances during the photolithographic steps; Rene Cullet, 324/716, 158R, 706, 719; 430/30
4. 4,144,067, Mar. 13, 1979, Light-sensitive copying material and method for the production of colored relief images; Hans Ruckert, et al., 430/324 , 175
5. 4,097,279, Jun. 27, 1978, Process for preparing an identification card; Edwin Nelson Whitehead, 430/39 ; 156/233, 234, 240, 277; 283/77, 109, 112; 355/40; 359/2, 3, 900; 427/145, 146, 180, 197; 430/252 [IMAGE AVAILABLE]
6. 3,752,072, Aug. 14, 1973, PROCESS FOR REPRODUCING A FULL-COLOR PICTURE IN ONE IMPRESSION; Leslie H. Lorber, 101/211, 401.1, 450.1; 430/6 , 301
7. 3,650,746, Mar. 21, 1972, DUAL IMAGE FORMATION ON SEPARATE SUPPORTS OF PHOTOCURABLE COMPOSITION; Robert J. Bailey, 430/252 ; 257/680; 430/288 , 322

=&gt; s 18 and two dimensional

1280178 TWO

98007 DIMENSIONAL

23279 TWO DIMENSIONAL

(TWO(W)DIMENSIONAL)

L9 0 L8 AND TWO DIMENSIONAL

=&gt; s 18 and integrated circuit

138023 INTEGRATED

421344 CIRCUIT

55153 INTEGRATED CIRCUIT

(INTEGRATED(W)CIRCUIT)

L10 1 L8 AND INTEGRATED CIRCUIT

=&gt; d cit

1. 4,835,088, May 30, 1989, Method and apparatus for generating high-resolution images; Greyson Gilson, 430/323 ; 156/643; 250/492.3; 359/29, 558; 427/555; 430/1 , 269 , 311 , 322 ; 437/20, 229

=&gt; s 110 and substrate

151865 SUBSTRATE

L11 1 L10 AND SUBSTRATE

=&gt; s 4835088/pn

L12 1 4835088/PN

=&gt; s 112 and two images

1280178 TWO

71212 IMAGES

(TWO(W)IMAGES)

L13 1 L12 AND TWO IMAGES

=&gt; ÷

US PAT NO: 4,835,088

L14: 1 of 1

SUMMARY:

BSUM(5)

Still, it is possible to reduce the wavelength by employing shorter-wavelength photons, such as those associated with ultraviolet light or X-rays, or by employing beams of massive particles, such as electrons or ions, that have energies associated with. . .

=&gt; s two images

1280178 TWO

71212 IMAGES

L15 3190 TWO IMAGES  
(TWO(W)IMAGES)

=&gt; s photolithograph? or lithograph?

11965 PHOTOLITHOGRAPH?

10031 LITHOGRAPH?

L16 20055 PHOTOLITHOGRAPH? OR LITHOGRAPH?

=&gt; s 115 and 116

L17 96 L15 AND L16

=&gt; s 117 and edges

319742 EDGES

L18 45 L17 AND EDGES

=&gt; s 15 and 118

L19 8 L5 AND L18

=&gt; s 119 asnd ultraviolet

MISSING OPERATOR 'L19 ASND'

=&gt; s 119 and ultraviolet

47484 ULTRAVIOLET

L20 3 L19 AND ULTRAVIOLET

=&gt; d cit 1-3

1. 5,130,213, Jul. 14, 1992, Device manufacture involving

lithographic processing; Steven D. Berger, et al., 430/4 , 5 ,  
296 , 311 , 395, 396 [IMAGE AVAILABLE]

2. 4,097,279, Jun. 27, 1978, Process for preparing an identification card; Edwin Nelson Whitehead, 430/39 ; 156/233, 234, 240, 277; 283/77, 109, 112; 355/40; 359/2, 3, 900; 427/145, 146, 180, 197; 430/252 [IMAGE AVAILABLE]

3. 3,650,746, Mar. 21, 1972, DUAL IMAGE FORMATION ON SEPARATE SUPPORTS OF PHOTOCURABLE COMPOSITION; Robert J. Bailey, 430/252 ; 257/680; 430/288 , 322

=&gt; s 5130213/pn

L21 1 5130213/PN

=&gt; s 121 and two images

1280178 TWO

71212 IMAGES

3190 TWO IMAGES

L22

1 L21 AND TWO IMAGES

=&gt; d kwic

US PAT NO: 5,130,213 [IMAGE AVAILABLE]

L22: 1 of 1

DETDESC:

DETD(67)

Optimal . . . number of factors may play a significant role. Desired image brightness, perhaps with a view to equality as between the two images, perhaps with a view to some prescribed ratio, perhaps with a view to specific exposure needs for the particular fabrication. . .

=&gt; s l21 and edges

319742 EDGES

L23

1 L21 AND EDGES

=&gt; d kwic

US PAT NO: 5,130,213 [IMAGE AVAILABLE]

L23: 1 of 1

DETDESC:

DETD(37)

The . . . simplify device fabrication. A recognized problem in processing a stepped surface is in maintaining thickness uniformity of resist on vertical edges. The problem may be avoided for properly selected electron acceleration voltages. Use of excess resist material, usually resulting in increasing thickness with depth but assuring reliable coating of vertical edges -presents little problem.

=&gt; s l21 and ultraviolet

47484 ULTRAVIOLET

L24

1 L21 AND ULTRAVIOLET

=&gt; d kwic

US PAT NO: 5,130,213 [IMAGE AVAILABLE]

L24: 1 of 1

SUMMARY:

BSUM(41)

A . . . built to minimum feature size of .about.1 .mu.m depends upon exposing and developing a resist layer by illumination with near ultraviolet radiation e.g. by means of an absorbing type mask. Both proximity printing and projection printing find use. Considerable thought and. . . feature size of .about.0.5 .mu.m) is expected to depend upon similar systems based on shorter wavelength illumination in the near ultraviolet spectrum. Requisites such as optics design and resist formulation, are at an advanced stage.

SUMMARY:

BSUM(42)

A . . . .mu.m, is not so well advanced. Some believe that lithographic delineation will depend upon shorter wavelength radiation in the deep ultraviolet spectrum.

SUMMARY:

BSUM(44)

It . . . in this category will rely upon further advances in mask

fabrication of devices. It is clear that wavelength limitations of ultraviolet radiation now in use make it unsuitable for imaging. While use of mask-to-image reduction permits passage of such radiation through. . .

DETDESC:

DETD(47)

The . . . the stated range. As an example, the facility for step coverage, or for expedient planarization processing may dictate preference to ultraviolet radiation, e.g. at 0.4 .mu.m design rules.

DETDESC:

DETD(56)

The . . . of proximity printing, is under extensive study for use in projection systems. Again, x-ray resists, registration techniques, etc. are known. Ultraviolet projection systems, both in the near UV and the vacuum UV spectra, are in use or under development.

=>

=> s 121 and micron

46541 MICRON

L25 1 L21 AND MICRON

=> d kwic

US PAT NO: 5,130,213 [IMAGE AVAILABLE]

L25: 1 of 1

ABSTRACT:

Fabrication of devices of micron and submicron minimum feature size is accomplished by lithographic processing involving a back focal plane filter. A particularly important fabrication. . .

SUMMARY:

BSUM(58)

Appropriate . . . energy forms are suitable from this standpoint. Inventive significance is primarily in terms of energy of properties inherently suited to micron and submicron feature size definition. A preferred system relies upon electrons sufficiently accelerated for appropriate fine feature resolution. Specific discussion. . .

DETDESC:

DETD(89)

Manufacturers . . . determine thickness of affected areas. In general, measurement equipment requires such an area. Experience dictates that fabrication based on the micron or submicron features of the invention requires about twice the specified dose (due to lessened proximity effect).

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*           W E L C O M E   T O   T H E           *
*           U. S.   P A T E N T   T E X T   F I L E           *
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=> s 430/1-975/cclst  
 '430/975' IS NOT A RECOGNIZED CLASS/SUBCLASS VALUE FOR RANGE SEARCHING.

=> s 430/1-950/cclst  
 \*WARNING\* - NUMBER OF UNIQUE TERMS TO BE ADDED MAY EXCEED LIMITS;  
 '430/1-950/CCLST' INTERPRETED AS: '430/1+NEXT499/CCLST OR 430/950+PREV  
 195/CCLST'.  
 30007 430/1+NEXT499/CCLST (500 TERMS)  
 15170 430/950+PREV195/CCLST (196 TERMS)  
 L1 36630 430/1-950/CCLST  
 (430/1+NEXT499/CCLST OR 430/950+PREV195/CCLST)

=> s ultraviolet or uv  
 83 ULTRAVIOLET  
 28734 UV  
 L2 28792 ULTRAVIOLET OR UV

=> s transfer? pattern  
 380166 TRANSFER?  
 208030 PATTERN  
 L3 286 TRANSFER? PATTERN  
 (TRANSFER?(W)PATTERN)

=> s 11 and 12  
 L4 3541 L1 AND L2

=> s 13 and 14  
 L5 12 L3 AND L4

=> s 15 and two image  
 1280178 TWO  
 155587 IMAGE  
 1538 TWO IMAGE  
 (TWO(W)IMAGE)  
 L6 0 L5 AND TWO IMAGE

=> s two(p)image?  
 1280178 TWO  
 168381 IMAGE?  
 L7 64673 TWO(P)IMAGE?

=> s 17 and two images  
 1280178 TWO  
 71212 IMAGES  
 3190 TWO IMAGES  
 (TWO(W)IMAGES)  
 L8 3190 L7 AND TWO IMAGES

=> s 11 and 18  
 L9 143 L1 AND L8

'A' IS NOT A RECOGNIZED COMMAND

=> s two(p)edges  
1280178 TWO  
319742 EDGES  
L10 114756 TWO(P)EDGES

=> s l10 and two edges  
1280178 TWO  
319742 EDGES  
6002 TWO EDGES  
(TWO(W)EDGES)  
L11 6002 L10 AND TWO EDGES

=> s l9 and l11  
L12 2 L9 AND L11

=> d cit 1-2

1. 5,077,154, Dec. 31, 1991, Soft edge mask; Ferrand D. E. Corley,  
430/4 ; 353/29, 30; 354/120; 355/70, 125; 430/333 , 394 ,  
396 , 397 , 494 [IMAGE AVAILABLE]

2. 4,526,862, Jul. 2, 1985, Film-based dual energy radiography; Norbert  
J. Pelc, 430/496 ; 250/475.2, 482.1; 430/139 , 502 , 503 ,  
507 , 509 , 966, 967; 976/DIG.439 [IMAGE AVAILABLE]

=> s l12 and l2  
L13 0 L12 AND L2

=>  $\phi$   
=> s l12 and l2  
L13 0 L12 AND L2

=> s l7 and l10  
L14 7256 L7 AND L10

=> s l14 and l1  
L15 372 L14 AND L1

=> s l15 and l2  
L16 65 L15 AND L2

=> s l16 and two(p)dimensional  
1280178 TWO  
98007 DIMENSIONAL  
36547 TWO(P)DIMENSIONAL  
L17 8 L16 AND TWO(P)DIMENSIONAL

=> s l17 and substrate  
151865 SUBSTRATE  
L18 6 L17 AND SUBSTRATE

=> s l18 and (photolithograph? or lithograph?)  
11965 PHOTOLITHOGRAPH?  
10031 LITHOGRAPH?  
L19 4 L18 AND (PHOTOLITHOGRAPH? OR LITHOGRAPH?)

=> d cit 1-4

1. 4,898,804, Feb. 6, 1990, Self-aligned, high resolution resonant  
dielectric lithography ; Kurt Rauschenbach, et al., 430/311 ,  
30 , 314 , 322 , 325 , 327 ; 437/180, 229

2. 4,587,203, May 6, 1986, Wet process for developing styrene polymer

430/325 ; 427/372.2, 387, 510, 515, 555, 558; 430/270 , 272 ,  
311 , 327 , 330 , 331 , 954

3. 4,535,054, Aug. 13, 1985, Wet process for developing styrene polymer  
resists for submicron lithography ; Robert G. Brault, et al.,  
430/325 , 270 , 331

4. 3,871,885, Mar. 18, 1975, CRYSTALLINE PHOTO-POLYMERIZABLE  
COMPOSITION; Walter Raymond Hertler, 430/281 , 271 , 283 ,  
916 , 923 ; 522/6, 9, 37, 39, 40, 43, 46, 63

=> s 11 and transfer?(p)pattern?

380166 TRANSFER?

234836 PATTERN?

20861 TRANSFER?(P)PATTERN?

L20 2430 L1 AND TRANSFER?(P)PATTERN?

=>

=> s 120 and 114

L21 49 L20 AND L14

=> s 121 and 12

L22 5 L21 AND L2

=> s 122 and substrate

151865 SUBSTRATE

L23 5 L22 AND SUBSTRATE

=> d cit 1-5

1. 5,051,329, Sep. 24, 1991, Reversal development of latent  
electrostatic images on xerotyping masters; Edward B. Caruthers, et  
al., 430/100 , 119 [IMAGE AVAILABLE]

2. 5,043,244, Aug. 27, 1991, Process for defined etching of substrates;  
Allan Cairncross, et al., 430/247 , 205 , 248 , 314 , 317  
[IMAGE AVAILABLE]

3. 4,898,804, Feb. 6, 1990, Self-aligned, high resolution resonant  
dielectric lithography; Kurt Rauschenbach, et al., 430/311 , 30 ,  
314 , 322 , 325 , 327 ; 437/180, 229

4. 4,647,524, Mar. 3, 1987, Transferring polymer from thin plastic  
films to photodevelop insulation patterns on printed wiring boards;  
Donald F. Sullivan, 430/312 , 258 , 260 , 319 , 935

5. 4,556,627, Dec. 3, 1985, Transferring polymer from thin plastic  
films to photodevelop insulation patterns on printed wiring boards;  
Donald F. Sullivan, 430/312 ; 156/212, 230, 241, 574; 430/257 ,  
311 , 319 , 327 , 394

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*           W E L C O M E   T O   T H E           *
*           U. S.   P A T E N T   T E X T   F I L E           *
* * * * *

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=> s lithograph? or lithograph?(p)pattern?

9941 LITHOGRAPH?

9941 LITHOGRAPH?

233101 PATTERN?

3035 LITHOGRAPH?(P)PATTERN?

L1 9941 LITHOGRAPH? OR LITHOGRAPH?(P)PATTERN?

=> s l1 and rayleigh?

1611 RAYLEIGH?

L2 32 L1 AND RAYLEIGH?

=> s l2 and image(p)mask?

154159 IMAGE

71699 MASK?

10409 IMAGE(P)MASK?

L3 8 L2 AND IMAGE(P)MASK?

=> s l3 and (two-dimensional or two(p)dimensional)

1272434 TWO

97150 DIMENSIONAL

23040 TWO-DIMENSIONAL

(TWO(W)DIMENSIONAL)

1272434 TWO

97150 DIMENSIONAL

36218 TWO(P)DIMENSIONAL

L4 2 L3 AND (TWO-DIMENSIONAL OR TWO(P)DIMENSIONAL)

=> d cit 1-2

1. 4,662,747, May 5, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 356/317; 359/368, 894 [IMAGE AVAILABLE]

2. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]

=> d l3 cit 1-8

1. 5,079,600, Jan. 7, 1992, High resolution patterning on solid substrates; Joel M. Schnur, et al., 257/750, 629; 427/98, 553, 558 [IMAGE AVAILABLE]

2. 5,077,085, Dec. 31, 1991, High resolution metal patterning of ultra-thin films on solid substrates; Joel M. Schnur, et al., 427/98, 58, 510 [IMAGE AVAILABLE]

3. 5,022,061, Jun. 4, 1991, An image focusing means by using an opaque object to diffract x-rays; Gary E. Sommargren, et al., 378/84, 43 [IMAGE AVAILABLE]

4. 4,820,927, Apr. 11, 1989, Electron beam source employing a

5. 4,662,747, May 5, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 356/317; 359/368, 894 [IMAGE AVAILABLE]

6. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]

7. 4,379,831, Apr. 12, 1983, Process for transferring a pattern onto a semiconductor disk; Ernst Lobach, 430/311; 355/27, 30; 430/273, 325, 326, 327, 396, 950 [IMAGE AVAILABLE]

8. 4,348,105, Sep. 7, 1982, Radiation shadow projection exposure system; Fausto Caprari, 355/67; 353/102 [IMAGE AVAILABLE]

=> s 14 and semiconductor?

90541 SEMICONDUCTOR?

L5 2 L4 AND SEMICONDUCTOR?

=> d cit 1-2

1. 4,662,747, May 5, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 356/317; 359/368, 894 [IMAGE AVAILABLE]

2. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]

=> s 13 and semiconductor?

90541 SEMICONDUCTOR?

L6 8 L3 AND SEMICONDUCTOR?

=> s 13 and substrate?

160503 SUBSTRATE?

L7 7 L3 AND SUBSTRATE?

=> d cit 1-7

1. 5,079,600, Jan. 7, 1992, High resolution patterning on solid substrates; Joel M. Schnur, et al., 257/750, 629; 427/98, 553, 558 [IMAGE AVAILABLE]

2. 5,077,085, Dec. 31, 1991, High resolution metal patterning of ultra-thin films on solid substrates; Joel M. Schnur, et al., 427/98, 58, 510 [IMAGE AVAILABLE]

3. 5,022,061, Jun. 4, 1991, An image focusing means by using an opaque object to diffract x-rays; Gary E. Sommargren, et al., 378/84, 43 [IMAGE AVAILABLE]

4. 4,662,747, May 5, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 356/317; 359/368, 894 [IMAGE AVAILABLE]

5. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]

6. 4,379,831, Apr. 12, 1983, Process for transferring a pattern onto a semiconductor disk; Ernst Lobach, 430/311; 355/27, 30; 430/273, 325, 326, 327, 396, 950 [IMAGE AVAILABLE]

~~7. 4,348,105, Sep. 7, 1982, Radiation shadow projection exposure system; Fausto Caprari, 355/67; 353/102 [IMAGE AVAILABLE]~~

=> M.

```

=> s method? or process?
    827975 METHOD?
    806935 PROCESS?
L23    1062861 METHOD? OR PROCESS?

=> s two-dimensional? or two(p)dimensional?
    1272434 TWO
    107686 DIMENSIONAL?
    24246 TWO-DIMENSIONAL?
        (TWO(W)DIMENSIONAL?)
    1272434 TWO
    107686 DIMENSIONAL?
    39332 TWO(P)DIMENSIONAL?
L24    39332 TWO-DIMENSIONAL? OR TWO(P)DIMENSIONAL?

=> s radiation? or radiation(p)sensitive?
    118446 RADIATION?
    117413 RADIATION
    161524 SENSITIVE?
    14157 RADIATION(P)SENSITIVE?
L25    118446 RADIATION? OR RADIATION(P)SENSITIVE?

=> s 123 and 124
L26    33592 L23 AND L24

=> s 125 and 126
L27    6984 L25 AND L26

=> s mask?
L28    71699 MASK?

=>
=> s mask? or mask(p)image?
    71699 MASK?
    49527 MASK
    166841 IMAGE?
    8961 MASK(P)IMAGE?
L29    71699 MASK? OR MASK(P)IMAGE?
    75% OF LIMIT FOR TOTAL ANSWERS REACHED

=> s 127 and 129
L30    1591 L27 AND L29

=> s rayleigh?
L31    1611 RAYLEIGH?

=> s 130 and 131
L32    20 L30 AND L31

=> s 132 and pattern?
    233101 PATTERN?

=>
=> s 132 and pattern?
    233101 PATTERN?
L34    13 L32 AND PATTERN?

=> s 134 and substate?

```

=> s 130 and substrate?  
160503 SUBSTRATE?  
L36 894 L30 AND SUBSTRATE?

=> s 136 and 131  
L37 6 L36 AND L31

=> d cit 1-6

1. 4,887,885, Dec. 19, 1989, Diffraction free arrangement; James E. Durnin, et al., 359/559; 250/493.1; 359/738; 372/66, 103 [IMAGE AVAILABLE]

2. 4,783,788, Nov. 8, 1988, High power semiconductor lasers; Eugene I. Gordon, 372/45, 46, 49, 50, 102

3. 4,662,747, May 5, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 356/317; 359/368, 894 [IMAGE AVAILABLE]

4. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]

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6. 3,963,997, Jun. 15, 1976, Device for the directive transmission of elastic surface waves and process for making the same; Pierre Hartemann, 333/150; 310/313D, 313R [IMAGE AVAILABLE]

=>

=> s 430/20-330/cclst  
L38 23072 430/20-330/CCLST (312 TERMS)  
(430/20+NEXT311/CCLST)

=> s 138 and 123  
L39 15381 L38 AND L23

=> s 139 and 125  
L40 6800 L39 AND L25

=> s 140 and 129  
L41 2659 L40 AND L29

=> s 124 and 141  
L42 170 L24 AND L41

=> s 142 and pattern?  
233101 PATTERN?  
L43 147 L42 AND PATTERN?

=> s 143 and substrate?  
160503 SUBSTRATE?  
L44 90 L43 AND SUBSTRATE?

=> s 144 and 131  
L45 1 L44 AND L31

=> d cit 1

~~1. 4,659,429, Apr. 21, 1987, Method and apparatus for production and use of nanometer scale light beams; Michael Isaacson, et al., 156/644, 643, 652, 655, 659.1; 355/78; 430/5, 311 [IMAGE AVAILABLE]~~

=> s 145 and photoresist?  
17768 PHOTORESIST?  
L46 1 L45 AND PHOTORESIST?

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